INDEX TO VOLUME 27

A

Page

Acree, S. F., Baker Wingfield, Effects of hydrochloric acid and salts on the absorption of light by β-naphthoquinonesulfonic acid, RP1424 ... 361
Airplane cameras, calibration, RP1428 ... 405
Aldehyde groups, determination of, in cellulose and hydrocellulose, RP1432 ... 449
Aldoses, reactions with chlorites, RP1408 ... 125
Alloys of iron and carbon, microstructural characteristics, RP1403 ... 65
Aqueous extracts from bottles, titration and conductivity measurements, RP1426 ... 381
Aromatic and aliphatic glycosides, optical rotations, RP1399 ... 9
Azeotropic distillation, separation of hydrocarbons by, RP1402 ... 39

B

Bactericidal effect of chlorites on sugars, RP1436 ... 491
Beek, John, Jr., The carbohydrate content of collagen, RP1438 ... 507
Bleaching of raw sugar with chlorites, RP1436 ... 491
Bone, collagen from, carbohydrate in, RP1438 ... 507
Boric oxide, crystalline, thermal expansion, RP1425 ... 371
Boron, determination, RP1401 ... 33
Brake-lining tests, effect of roughness of brake drums, RP1427 ... 395
Brauns, Dirk H., Quantitative determination of fluorine in organic compounds, RP1406 ... 105
Bricks, building, thermal expansion, RP1414 ... 197
Brickwedde, Langhorne H., George W. Vinal, Relation of electromotive force to the concentration of deuterium oxide in saturated standard cells, RP1435 ... 479
Butanes, free energies and equilibria of isomerization of, RP1440 ... 529

C

Calcium sulfate, behavior at high temperatures, RP1413 ... 191
Cameras, precision airplane, RP1428 ... 405
Carbohydrate content of collagen, RP1438 ... 507
Carbohydrates, chemical reaction of the chlorites with, RP1408 ... 125
Carbon dioxide evolved from leather, RP1418 ... 257
Cellulose, determination of aldehyde groups in, RP1432 ... 449
Cellulose, dissolving in cuprammonium, RP1442 ... 551
Cellulose fluidities in different solvents, RP1441 ... 543
Cement, portland, phase equilibrium studies involving potash, RP1421 ... 311
Cement, portland, relationship of the garnet-hydrogarnet series to sulfateresistance, RP1411 ... 171
Cement, portland, structure of tricalcium aluminate, RP1437 ... 499
Chlorites, chemical reaction with carbohydrates, RP1408 ... 125
Chlorites, use for treating raw sugar, RP1436 ... 491
Chromium, thermal expansion, RP1407 ... 113
Cleveland, Richard S., Herbert F. Schiefer, A critical study of some factors affecting the breaking strength and elongation of cotton yarns, RP1422 ... 325
Collagen, carbohydrate content, RP1438 ... 507
Conductivity measurements of aqueous extracts from bottles, RP1426 ... 381
Copper, determination, RP1417 ... 237
Cotton, determination of aldehyde groups in, RP1432 ... 449
Cotton, fluidities in different solvents, RP1441 ... 543
Cotton yarns, breaking strength and elongation, RP1422 ... 325
Crystalline rubber, density, RP1416 ... 229
Crystal structure of tricalcium aluminate, RP1437 ... 499
Cuprammonium affecting solution of cellulose in, RP1442 ... 551
Cystine, role in structure of wool, RP1405 ... 89

D

Page

Density of crystalline rubber, RP1416 ... 229
Deuterium oxide in standard cells, RP1435 ... 479
Dextrose, determination, RP1417 ... 237
Digges, Thomas G., Microstructural characteristics of high-purity alloys of iron and carbon, RP1403 ... 65
Disaccharides, enzymatic hydrolysis, RP1398 ... 1
Dissociation constants of phenols and optical rotations, RP1399 ... 9
Distillation, azeotropic, separation of hydrocarbons by, RP1402 ... 39
Donoghue, James J., Donald Hubbard. Thermal expansion studies of boric oxide glass and of crystalline boric oxide, RP1425 ... 371
Dreby, Edwin C., The Planoflex, a simple device for evaluating the pliability of fabrics, RP1434 ... 469
Dye absorption by glass surfaces, RP1400 ... 27

E

Electromotive force of standard cells, RP1435 ... 479
Enzymatic hydrolysis of disaccharides and glycosides, RP1398 ... 1
Enzymes, nature of the resistance of wool to, RP1433 ... 459

F

Fabrics, pliability, device for evaluating, RP1434 ... 469
Fiber, wool, structure, RP1412 ... 181
Filter, luminosity, use in physical photometer, RP1415 ... 217
Finn, Alfred N., Francis W. Glaze, An improvement in the "partition method" for the determination of boron, RP1401 ... 33
Flint, E. P., Lansing S. Wells, Relationship of the garnet-hydrogarnet series to the sulfate resistance of portland cements, RP1411 ... 171
Fluidities of celluloses in different solvents, RP1441 ... 543
Fluidity measurements, equipment to dissolve cellulose for, RP1442 ... 551
Fluorine, determination, RP1406 ... 105
Frame, rigid, stress analysis, RP1431 ... 443
Free energies and equilibria of isomerization of the butanes, pentanes, hexanes, and heptanes, RP1440 ... 529
Frush, Harriet L., Horace S. Isbell, Sugar acetates, acetylglycosyl halides, and orthoacetates in relation to the Walden inversion, RP1429 ... 413
Furnace, high temperature, with special oxide resistors, RP1443 ... 555

G

Gagon, Daniel H., Samuel J. Rosenberg, Effect of grain size and heat treatment upon impact-toughness at low temperatures of medium carbon forging steel, RP1410 ... 159
Galactose, occurrence in collagen, RP1432 ... 449
Garnet-hydrogarnet series to the sulfate resistance of portland cements, relationship of, RP1411 ... 171
Geiger, Walton, B., Wilbur I. Patterson, Louis R. Mizell, Milton Harris, Nature of the resistance of wool to digestion by enzymes, RP1433 ... 459
—, —, —, —, Role of cystine in the structure of the fibrous protein, wool, RP1405 ... 89
Geller, R. F., A resistor furnace, with some preliminary results up to 2,000° C., RP1443 ... 555
Glasgow, Augustus R., Jr., Beveridge J. Mair, Frederick D. Rossini, Separation of hydrocarbons by azeotropic distillation, RP1402 ... 39
Glass, boric oxide, thermal expansion, RP1425 ... 371
Glass, chemical durability, RP1409 ... 143
Glass, chemical durability, effect on the asymmetry potential and reversibility of the glass electrode, RP1400 ... 27
Glass electrode, asymmetry potential and chemical durability, RP1400 ... 27

Page

Glaze, Francis W., Alfred N. Finn, An improvement in the "partition method" for the determination of boron, RP1401 33
Gleysteen, Leland F., Ralph T. Mease, Fluidity of Triton F and xanthate solutions as a measure of cellulose degradation, RP1441 543
d-*α*-Glucoheptose, phenyl glycosides of, RP1399 9
Gluconic acid formed by oxidation of glucose with chlorites, RP1408 125
Glucose, occurrence in collagen, RP1438 507
β-Glucosidase, hydrolysis of disaccharides and halogenosalicin compounds with, RP1398 1
Glycosides and orthoacetates of *d*-*α*-guloheptopyranose and of neolactose, RP1429 413
Glycosides, preparation and optical rotations, RP1399 9
Grain size, effect on toughness of forging steel, RP1410 159
Gross, Francis J., Francis B. Silsbee, Testing and performance of volt boxes, RP1419 269
d-*α*-Guloheptose, derivatives of, RP1429 413

H

Halogenosalicins, enzymatic hydrolysis, RP1398 1
Hamilton, Edgar H., Donald Hubbard, Effect of the chemical durability of glass on the asymmetry potential and reversibility of the glass electrode, RP1400 27
——, ——, Studies of the chemical durability of glass by an interferometer method, RP1409 143
——, ——, Titration and conductivity measurements of aqueous extracts from bottles, RP1426 381
Hanna, Nancy P., W. Harold Smith, Comparison between the observed density of crystalline rubber and the density calculated from X-ray data, RP1416 229
Harris, Milton, Walton B. Geiger, Wilbur I. Patterson, Louis R. Mizell, Nature of the resistance of wool to digestion by enzymes, RP1433 459
——, *Charles W. Hock, Robert C. Ramsay*, Microscopic structure of the wool fiber, RP1412 181
——, *Albert R. Martin, Leonard Smith, Roy L. Whistler*, Estimation of aldehyde groups in hydrocellulose from cotton, RP1432 449
——, *Wilbur I. Patterson, Walton B. Geiger, Louis R. Mizell*, Role of cystine in the structure of the fibrous protein, wool, RP1405 89
——, *Henry A Rutherford*, Photochemical reactions in silk, RP1404 81
Heats of isomerization of the five hexanes, RP1420 289
Heats of isomerization of the nine heptanes, RP1439 519
Heat treatment, effect on toughness of forging steels, RP1410 159
Heavy water, use in standard cells, RP1435 479
Heptanes, free energies and equilibria of isomerization of, RP1440 529
Heptanes, heats of isomerization of the nine, RP1439 519
Hexanes, free energies and equilibria of isomerization of, RP1440 529
Hexanes, heats of isomerization of the five, RP1420 289
Hidnert, Peter, Thermal expansion of cast and of swaged chromium, RP1407 113
Hock, Charles W., Robert C. Ramsay, Milton Harris, Microscopic structure of the wool fiber, RP1412 181
Holt, William L., Rolla H. Taylor, Effect of roughness of cast-iron brake drums in wear tests of brake linings, RP1427 395
Hubbard, Donald, James J. Donoghue, Thermal expansion studies of boric oxide glass and of crystalline boric oxide, RP1425 371
——, *Edgar H. Hamilton*, Effect of the chemical durability of glass on the asymmetry potential and reversibility of the glass electrode, RP1400 27
——, ——, Studies of the chemical durability of glass by an interferometer method, RP1409 143
——, ——, Titration and conductivity measurements of aqueous extracts from bottles, RP1426 381
Hydrocarbons in petroleum, physical properties, RP1423 343

Page

Hydrocarbons, separation of, by azeotropic distillation, RP1402 39
Hydrocellulose, from cotton, determination of aldehyde groups in, RP1432 449
Hydrolysis of disaccharides by enzymes, RP1398 1

I

Interferometer method for determining chemical durability of glass, RP1409 143
Invert sugar, determination and preparation, RP1417 237
Iron-carbon alloys, structure, RP1403 65
Isbell, Horace S., Allene Jeanes, Chemical reactions of the chlorites with carbohydrates, RP1408 125
——, *Harriet L. Frush*, Sugar acetates, acetylglycosyl halides, and orthoacetates in relation to the Walden inversion, RP1429 413
——, *William Ward Pigman*, Optical rotatory relationships exhibited by aromatic and aliphatic glycosides, RP1399 9
——, Use of chlorites for treating raw sugars, RP1436 491
Isomerization of butanes, pentanes, hexanes, and heptanes, free energies and equilibria of, RP1440 529
Isomerization of the five hexanes, heats of, RP1420 289
Isomerization of the nine heptanes, heats of, RP1439 519

J

Jackson, Richard F., Emma J. McDonald, Errors of Munson and Walker's reducing-sugar tables and the precision of their method, RP1417 237
Jeanes, Allene, Horace S. Isbell, Chemical reactions of the chlorites with carbohydrates, RP1408 125

K

Kanagy, Joseph R., Evolution of carbon dioxide and water from vegetable-tanned leathers at elevated temperatures, RP1418 257
Ketoses, reactions with chlorites, RP1408 125
Koenigs-Knorr reaction, orthoester formation in, RP1429 413

L

Launer, Herbert F., Reflection-transmission relationships in sheet materials, RP1430 429
Leather, stability at elevated temperatures, RP1418 257
Levulose, determination, RP1417 237

M

McDonald, Emma J., Richard F. Jackson, Errors of Munson and Walker's reducing-sugar tables and the precision of their method, RP1417 237
McMurdie, Howard F., Structure of tricalcium aluminate, RP1437 499
Mair, Beveridge J., Anton J. Streiff, Isolation of 1,2,3,4,tetramethylbenzene, 5,6,7,8-tetrahydronaphthalene, 1-methyl-5,6,7,8-tetrahydronaphthalene, and 2-methyl-5,6,7,8-tetrahydronaphthalene from petroleum, RP1423 343
——, *Augustus R. Glasgow, Jr., Frederick D. Rossini*, Separation of hydrocarbons by azeotropic distillation, RP1402 39
d-*α*-Mannoheptose, phenyl glycosides of, RP1399 9
Martin, Albert R., Leonard Smith, Roy L. Whistler, Milton Harris, Estimation of aldehyde groups in hydrocellulose from cotton, RP1432 449
Mease, Ralph T., An improvement in the method for dissolving cellulose in cuprammonium solution for fluidity measurements, RP1442 551
——, *Leland F. Gleysteen*, Fluidity of Triton F and xanthate solutions as a measure of cellulose degradation, RP1441 543
Mizell, Louis R., Walton B. Geiger, Wilbur I. Patterson, Milton Harris, Nature of the resistance of wool to digestion by enzymes, RP1433 459
——, ——, ——, ——, Role of cystine in the structure of the fibrous protein, wool, RP1405 89

Page

Munson and Walker reducing-sugar method, RP1417 ... 237

N

β-Naphthoquinonesulfonic acid, spectral absorption, RP1424 ... 361
Neolactose, derivatives of, RP1429 ... 413
Newman, Edwin S., Behavior of calcium sulfate at high temperatures, RP1413 ... 191

O

Optical rotations of glycosides, RP1399 ... 9
Optical rotation of sugar derivatives, RP1429 ... 413
Orthoacetates of sugars, RP1429 ... 413
Osgood, William R., Stresses in a rectangular knee of a rigid frame, RP1431 ... 443

P

Partition method for determination of boron, RP1401 ... 33
Patterson, Wilber I., Walton B. Geiger, Louis R. Mizell, Milton Harris, Nature of the resistance of wool to digestion by enzymes, RP1433 ... 459
——, ——, ——, ——, Role of cystine in the structure of the fibrous protein, wool, RP1405 ... 89
Pentanes, free energies and equilibria of isomerization of, RP1440 ... 529
Petroleum, fractionation of, by azeotropic distillation, RP1402 ... 39
Petroleum, fractionation of 1,2,3,4-tetramethylbenzene, 5,6,7,8-tetrahydronaphthalene, 1-methyl-5,6,7,8-tetrahydronaphthalene, and 2-methyl-5,6,7,8-tetrahydronaphthalene from, RP1423 ... 343
Phase equilibrium studies of cement, RP1421 ... 311
Photochemical reactions in silk, RP1404 ... 81
Photographic lens, effect of weak prism, RP1428 ... 405
Photometer, physical, RP1415 ... 217
Pigman, William Ward, Enzymatic hydrolysis of disaccharides and halogenosalicins, RP1398 ... 1
——, *Horace S. Isbell*, Optical rotatory relationships exhibited by aromatic and aliphatic glycosides, RP1399 ... 9
Pitzer, Kenneth S., Frederick D. Rossini, Edward J. R. Prosen, Free energies and equilibria of isomerization of the butanes, pentanes, hexanes, and heptanes, RP1440 ... 529
Planoflex, use of, in evaluating pliability of fabrics, RP1434 ... 469
Pliability of fabrics, device for evaluating, RP1434 ... 469
Portland cement, phase equilibrium studies involving potash, RP1421 ... 311
Portland cements, relationship of the garnet-hydrogarnet series to sulfate resistance, RP1411 ... 171
Portland cement, structure of tricalcium aluminate, RP1437 ... 499
Principal point, location of, in airplane camera, RP1428 ... 405
Prosen, Edward J. R., Frederick D. Rossini, Heats of isomerization of the five hexanes, RP1420 ... 289
——, ——, *Pitzer, Kenneth S.*, Free energies and equilibria of isomerization of the butanes, pentanes, hexanes, and heptanes, RP1440 ... 529
——, ——, Heats of isomerization of the nine heptanes, RP1439 ... 519
Protein, role of cystine in, RP1405 ... 89

Q

Quinone phenolate, resonance theory, RP1424 ... 361

R

Ramsay, Robert C., Charles W. Hock, Milton Harris, Microscopic structure of the wool fiber, RP1412 ... 181
Reducing sugar, determination by Munson and Walker method, RP1417 ... 237
Refining of sugar, use of chlorites, RP1436 ... 491
Reflection-transmission relationships in sheet materials, RP1430 ... 429
Resistor furnace, using special oxide resistors, RP1443 ... 555
Rigid frame, stress analysis, RP1431 ... 443

Page

Rosenberg, Samuel J., Daniel H. Gagon, Effect of grain size and heat treatment upon impact-toughness at low temperatures of medium carbon forging steel, RP1410 ... 159
Ross, Culbertson W., Thermal expansion of clay building bricks, RP1414 ... 197
Rossini, Frederick D., Bevеridge J. Mair, Augustus R. Glasgow, Jr., Separation of hydrocarbons by azeotropic distillation, RP1402 ... 39
——, *Edward J. R. Prosen*, Heats of isomerization of the five hexanes, RP1420 ... 289
——, ——, *Pitzer, Kenneth S.*, Free energies and equilibria of isomerization of the butanes, pentanes, hexanes, and heptanes, RP1440 ... 529
——, ——, Heats of isomerization of the nine heptanes, RP1439 ... 519
Roughness of brake drums, effect of, RP1427 ... 395
Rubber, crystalline, density, RP1416 ... 229
Rutherford, Henry A., Milton Harris, Photochemical reactions in silk, RP1404 ... 81

S

Salicin and halogenosalicins, hydrolysis of, RP1398 ... 1
Schiefer, Herbert F., Richard S. Cleveland, A critical study of some factors affecting the breaking strength and elongation of cotton yarns, RP1422 ... 325
Sheet materials, reflection-transmission relationships, RP1430 ... 429
Silk, factors affecting photochemical decomposition, RP1404 ... 81
Silsbee, Francis B., Francis J. Gross, Testing and performance of volt boxes, RP1419 ... 269
Smith, Leonard, Albert R. Martin, Roy L. Whistler, Milton Harris, Estimation of aldehyde groups in hydrocellulose from cotton, RP1432 ... 449
Smith, W. Harold, Nancy P. Hanna, Comparison between the observed density of crystalline rubber and the density calculated from X-ray data, RP1416 ... 229
Spectral absorption, salt effect on β-naphthoquinonesulfonic acid, RP1424 ... 361
Standard cells containing deuterium oxide, RP1435 ... 479
Steels, medium carbon, forging, effect of grain size and heat treatment on toughness, RP1410 ... 159
Streiff, Anton J., Bevеridge J. Mair, Isolation of 1,2,3,4-tetramethylbenzene, 5,6,7,8-tetrahydronaphthalene, 1-methyl-5,6,7,8-tetrahydronaphthalene, 2-methyl-5,6,7,8-tetrahydronaphthalene from petroleum, RP1423 ... 343
Stress analysis of rigid frame, RP1431 ... 443
Sucrose, determination, RP1417 ... 237
Sucrose, reactions with chlorites, RP1408 ... 125
Sugars, orthoacetate derivatives, RP1429 ... 413
Sugar, use of chlorites in production, RP1436 ... 491
Sulfate resistance of portland cements, relationship of the garnet-hydrogarnet series, RP1411 ... 171

T

d-Talose, phenyl glycoside of, RP1399 ... 9
Tannins, oxidation, RP1418 ... 257
Taylor, Rolla H., William L. Holt, Effect of roughness of cast-iron brake drums in wear tests of brake linings, RP1427 ... 395
Taylor, William C., The system $2CaO.SiO_2$—$K_2O.CaO.SiO_2$, and other phase-equilibrium studies involving potash, RP1421 ... 311
Teele, Ray P., A physical photometer, RP1415 ... 217
Testing machines, effect of rate of loading on breaking strength of cotton yarns, RP1422 ... 325
Thermal expansion of boric oxide glass and of crystalline boric oxide, RP1425 ... 371
Thermal expansion of cast and of swaged chromium, RP1407 ... 113
Thermal expansion of clay building bricks, RP1414 ... 197
Thorium oxide resistors, treated, for furnaces, RP1443 ... 555
Titration measurements of aqueous extracts from bottles, RP1426 ... 381
Topographic mapping, calibration of airplane cameras for, RP1428 ... 405
Transmission-reflection relationships in sheet materials, RP1430 ... 429

Page

Tricalcium aluminate, crystal structure, RP1437. 499
Triton F as cellulose solvent, RP1441..... 543

V

Vinal, George W., Langhorne H. Brickwedde, Relation of electromotive force to the concentration of deuterium oxide in saturated standard cells, RP1435..... 479
Volt boxes, testing and performance, RP1419... 269

W

Walden inversion, mechanism of, RP1429..... 413
Washer, Francis E., Locating the principal point of precision airplane mapping cameras, RP1428 405
Wear tests of brake linings, RP1427 395
Wells, Lansing S., F. P. Flint, Relationship of the garnet-hydrogarnet series to the sulfate resistance of portland cements, RP1411..... 171
Weston standard cells with deuterium oxide, RP1435..... 479

Page

Whistler, Roy L., Albert R. Martin, Leonard Smith, Milton Harris, Estimation of aldehyde groups in hydrocellulose from cotton, RP1432.. 449
Wingfield, Baker, S. F. Acree, Effects of hydrochloric acid and salts on the absorption of light by β-naphthoquinonesulfonic acid, RP1424.... 361
Wool fiber, structure, RP1412..... 181
Wool, resistance to enzymes, RP1433..... 459
Wool, role of cystine in, RP1405..... 89; RP1433..... 459

X

Xanthate solutions for fluidity measurements, RP1441..... 543
X-ray study of tricalcium aluminate, RP1437... 499

Y

Yarns, breaking strength and elongation, RP1422..... 325

○